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PALEONTOLOGY.

Spencerites.[1] — This genus is founded upon the *Lepidostrobus insignis* and *Lepidodendron spenceri* of Williamson, whose material consisted of cones with their detached peduncles, but no vegetative parts. The specimens were derived from the coal measures of Lancashire and Yorkshire, and were first described by Williamson in 1878.

A review of this material in conjunction with additional specimens from different sources, convinces Dr. Scott that the characters presented by the cones are such as to demand the institution of a new genus under the name of Spencerites. To this are assigned Williamson's *Lepidodendron spenceri*, from which the generic name is taken, and *Lepidostrobus insignis*, under the name of *S. insignis*. The essential features of this species are found in the course of the leaf trace bundles; in the peltate form of the sporophylls which consist of a short, cylindrical pedicel expanding into a relatively large lamina; the approximately spherical sporangia which are quite free from the pedicel, but attached by a narrow base to the upper surface of the lamina where it begins to expand, and in the characteristics of the spores which are intermediate between the microspores and macrospores of Lepidostrobus and are provided with a hollow wing formed from the dilated cuticle about the equator.

Spencerites majusculus, a new species, is a large plant with larger cones; the sporophylls are more numerous, but the spores are much smaller, form quadrants of a sphere, and have narrow wings along their three angles.

The genus differs from Lepidostrobus chiefly on account of the different mode of insertion of the sporangia, the structure of the sporangial wall and of the spaces, and also the whole habit of the cone.

Cheirostrobus.[2] — From the well-known Calciferous Sandstone Series at Pettycur, on the Firth of Forth, there has been obtained an entirely new type of cone which Dr. Scott describes under the name of *Cheirostrobus pettycurensis*, thus adding to the eight distinct types

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[1] Scott, D. H. On the Structure and Affinities of Fossil Plants from the Palæozoic Rocks, *Phil. Trans. R. Soc.*, Ser. B, 189 (1897), 83–106.

[2] Scott, D. H. On Cheirostrobus, a New Type of Fossil Cone from the Lower Carboniferous Strata (Calciferous Sandstone Series), *Phil. Trans. R. Soc.*, Ser. B, 189 (1897), 1–34.

of cones already known as occurring in the Palæozoic rocks. As found in a calcified form, the cone, somewhat flattened, measures about 5 cm. in its greatest, and from 2 to 2.3 cm. in its shortest diameter. It consists of a cylindrical axis bearing numerous compressed sporophylls arranged in crowded, many membered verticils. Each sporophyll is divided nearly to its base into an inferior and a superior lobe; the lobes are palmately divided into segments, of which half are fertile and half are sterile, each segment consisting of an elongated stalk bearing a terminal lamina. The large sporangia, of which there are usually four on each sporangiophore, are attached by their ends remote from the axis, to the peltate laminæ of the sporangiophores, and contain numerous spores. These latter are about .065 mm. in diameter.

While there are certain features which suggest comparison with certain Gymnosperms, Dr. Scott concludes that in reality it belongs to the Sphenophylleæ, presenting, in certain respects, a remarkable agreement with such forms as *Sphenophyllum dawsoni* and *S. Cuneifolium.* From the additional light which this plant throws upon the allied genus, the Sphenophyllineæ are regarded as representing a generalized type combining many of the features of Equisetineæ and Lycopodineæ, and indicating the common origin of these two series.

Lepidophloios.[1] — Recent studies of material collected during the past fifty years enable the author to separate two species under the names of *Lepidophloios acadianus* and *L. cliftonensis.* The genus is represented by large and dichotomously branching trees bearing very long and linear leaves. The usually stout branches give rise to slender branchlets bearing spirally arranged and stalked cones. The persistent leaf bases give to the stem a rugged and scaly appearance, but as these characters are removed by decay or other causes, there often remains only a smooth surface bearing mere traces of the original leaves, hence much of the material properly belonging to this genus has been described under the name of Halonia and Bothrodendron.

The internal structure conforms to the Sigillarian type. The author shows that the genus is clearly related to Lepidodendron, with which it may readily be confounded, and summarizes his views as to the general relations of this and allied genera in the statement

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[1] Dawson, Sir J. W. On the Genus Lepidophloios as Illustrated by Specimens from the Coal Formation of Nova Scotia and New Brunswick, C. M. G., *Trans. R. Soc. Can.*, Second Ser., III (1897), iv, 57.